TACKLING THE BIG THREE

Contaminated drinking water, untreated human excrement, and air pollution—these three horsemen of the environmental health apocalypse exact an enormous toll in death and disease in the developing world. In fact, according to the World Health Organization (WHO), they cause about 7.7 million deaths annually, 15% of the estimated global death toll of 52 million. Five million of these deaths can be blamed on poor drinking water, poor sanitation, and dirty home environments, according to a November 1996 WHO fact sheet. At any given time, up to half of humanity has one of the six main diseases—diarrhea; infestation with ascaris, guinea worm, or hookworm; schistosomiasis; or trachoma—associated with poor drinking water and sanitation.

A December 1997 WHO fact sheet attributes more than 2.7 million annual deaths globally to air pollution. Two-thirds of the deaths occur in rural settings, where the biggest single culprit is the burning of biomass fuel. An increasing number of huge cities, particularly in East Asia, are suffering choking levels of air pollution.

Despite these alarming numbers, human health is not always a priority in environmental forums. Bernard Goldstein, director of the Environmental and Occupational Health Sciences Institute at Rutgers University in New Brunswick, New Jersey, and the University of Medicine and Dentistry of New Jersey, says, "It was a close-run battle to include human health in the Rio agenda [of 1992]. There's a relatively large group in the international arena who see environmental issues as independent of human health." Just from the burden of morbidity, he adds, "It's inconceivable to me that one can sustainably develop the planet without healthy people."

Compared to some other environmental health problems, such as insect-vectored diseases or hormone disruption, the "big three" of water, sanitation, and air pollution are relatively well-understood. If research has not yet shown how to prevent or cure malaria, it has surely deciphered the problems of treating sewage, delivering potable water, and cleaning urban air. But solving the problems of the big three requires something harder to come by than research—buckets of money. Despite the $134 billion spent by governments and international agencies during the International Drinking Water Supply and Sanitation Decade (1981–1990), more than 1 billion people still lacked safe drinking

water and almost 1.8 billion lacked adequate sanitation when the decade was over. In 1990, the Global Consultation on Safe Water and Sanitation for the 1990s, held in New Delhi, India, estimated that half a trillion dollars—five times the current rate of spending—would be needed to supply universal access to clean water and sanitation by the year 2000.

Against this backdrop, many have questioned how well major international agencies such as the World Bank, the United Nations (U.N.), and the WHO are dealing with issues of clean water, basic sanitation, and urban air pollution. Theoretically, someone should know whether the money funneled by these organizations into world health and environmental problems is being spent wisely or being wasted. But nobody seems to know. Getting the answer "sounds like a Ph.D. thesis, or a series of theses," says Thomas Yuill, director of the Institute for Environmental Studies at the University of Wisconsin at Madison, who studies the effects of environmental change on infectious disease. Despite regional disparities in income and economy, the broad range of problems, and the multitude of players, nobody seems to be tracking these questions in the broad picture. With that consideration in mind, what is the international response to the big three killers?

The World Bank

The biggest single player in international development is the World Bank, whose overriding goal is reducing poverty. The bank, based in Washington, DC, and owned by 158 government shareholders, is actually two institutions. The International Bank for Reconstruction and Development lends money to nations with good credit ratings. The International Development Association lends at concessionary terms to other nations. Combined gross disbursements (mainly loans) were about $20 billion in Fiscal Year 1997.

Long the target of environmentalists who charge that its projects emphasize development at the expense of the environment, the bank appeared to change focus in the wake of the 1992 Rio Earth Summit. Now, bank officials are eager to talk environment. "We at the bank are more aware than ever of the continuing link between the degrading environment and the poverty still afflicting so many of the world's people," director James Wolfensohn told the U.N. last June.

The new approach was first demonstrated in the early 1990s, when the bank examined the relationship between air and water pollution and health in Eastern and Central Europe. David Hanrahan, technology and pollution policy unit chief in the World Bank's environment department, says studies were undertaken with the intention of helping nations set priorities and focus on the worst environmental problems. "We've taken the view that we're concerned about the environment per se," Hanrahan says, "and also want to see that whatever resources are available are directed toward things that have the greatest benefit." He adds that data showing that medical costs were much higher in polluted areas were useful in demonstrating to governments that efforts to restrict pollution are likely to have clear economic benefits.

Recently, the bank's focus shifted to Asia. A 1997 World Bank report titled *Can the Environment Wait? Priorities for East Asia* estimated that environmental health problems were costing China between 3.5% and 7.7% of gross domestic product. Chronic obstructive pulmonary disease and lower respiratory tract infections, both often caused by air pollution, accounted for 1.9 million deaths per year—21.2% of all deaths in China. Air pollution cost the country an estimated 4.5 million person-years of lost productivity each year—a huge loss even in the world's largest population.

John Briscoe, senior water advisor in the World Bank's environmental and sustainable development department, says about 5% of new loans—worth about $1 billion annually—are devoted to drinking water and sanitation. Although water and sanitation are linked (since both are necessary to prevent communicable diseases), he says water is the first priority. "Our portfolio looks quite different in places where coverage for water is quite low," he says. "When it gets high—in Brazil, around 90% of the urban population has water—then demand for wastewater treatment becomes quite high."

Potable water and sanitation accessibility both became more available during the 1980s, Briscoe says. While 72% of all urban households had access to a water supply in 1980, 87% of a greatly increased urban population had it in 1990. In rural areas, the percentage of the population having access to a potable water supply rose from 29% to 69% during the same period.

Briscoe calls inefficient or corrupt water utilities "some of the worst public agencies you can find." He explains, "Many utilities are run as government departments with no interest in serving users, but only in maintaining employment and keeping the government happy." The World Bank favors leasing poorly run public facilities to private contractors, and cites such success stories as Abidjan, Ivory Coast. The city's water system went private about 30 years ago; now, Briscoe says, nobody worries about drinking the water, in contrast to the situation in most other African cities.

It's easy to find observers who are leery of privatizing this essential service. "It will end up serving people who have resources," says Yuill. Poor people, he adds, "are the stratum of society that's most adversely affected by bad water and sewers, and these are the people who have the least resources to invest in [rectifying] that." But Briscoe responds that many urban poor people are already paying water vendors, who sometimes charge 10 times more than good utilities, which deliver potable water in a reliable manner, do. With appropriate safeguards and open bidding for contracts, Briscoe feels confident that the profit motive can start a cycle of more profits leading to better service.

Despite its newfound concern for the environment, the World Bank's number-one job is reducing poverty, and the familiar complaint that its projects often result in environmental health problems is still heard. "Most of what the [nongovernmental organizations] complain about is not the environmental lending, but the nonenvironmental lending and its adverse effects," says Hilary French, vice president for research at the Worldwatch Institute in Washington, DC, who writes about the role of international organizations and the environment. Daphne Wysham, a research fellow at the Institute for Policy Studies in Washington, DC, charges that the World Bank's loans for coal mines and power plants in Orissa State, India, have damaged the environment and health. She says the strip mines destroy the water table, drying up drinking water wells. She alleges that the power plants are dumping coal ash into rivers, turning them into a "gray soup," and forcing desperate villagers to improvise water filters from sand.

Furthermore, the bank's new environmental loans are dropping after years of growth. The environmental portfolio skyrocketed from less than $1 billion in 1989 to $8.93 billion in 1994, topping off at a total of $11.60 billion in 1997, according the bank's 1997 annual report. This report showed that new environmental lending dropped from $824 million in Fiscal Year 1995 to $246.7 million in 1997.

Although the environmental department's budgets have also declined in recent years, department director Robert Watson—a former U.S. government scientist who has long focused on the dangers of ozone depletion and global warming, and who also directs the Intergovernmental Panel on Climate Change, the U.N.'s research program on greenhouse warming—does not see that as necessarily bad, if environmentalism can be integrated into the World Bank's total strategy. A new team structure, he says, is bringing people with regional responsibility into the environmental department, thus connecting environmental concerns with actual lending. "When I come up with a

strategy for water, biodiversity, or whatever, if we can move naturally out into the region, it will be ten times more powerful," he says.

The United Nations

Other international agencies have far less financial resources than the World Bank, and their responsibility is far more diffuse. The U.N. has 12 programs with some environmental responsibility, noted French in a 1995 Worldwatch Institute report, *Partnership for the Planet: An Environmental Agenda for the United Nations.* The leading U.N. agencies are the WHO, the United Nations Environment Programme (UNEP), and the United Nations Development Programme (UNDP).

With headquarters in Nairobi, Kenya, UNEP spends about $50 million per year. In 1998–1999, the agency will spend $10.5 million on programs devoted to achieving what it calls "a better environment for human health and well-being," which includes clean water, improved sanitation, and breathable air. The U.N. Secretary General has designated UNEP as the U.N. agency responsible for global water issues. "We're a small outfit, so we must concentrate on catalyzing action, convening, and information dissemination," says Joanne Fox-Przeworski, UNEP's regional director for North America. Together with the World Bank and the UNDP, UNEP supports the biennial *World Resources* reports published by the World Resources Institute of Washington, DC. The 1998–1999 edition focuses on environmental health.

UNEP's freshwater unit tries to facilitate environmentally sustainable management of global freshwater resources. Indeed, UNEP's new executive director, Klaus Töpfer, has named drinking water as a priority area. "He proposed steps to systematize an inventory of the state of freshwater resources," says Fox-Przeworski, with a focus on quantity, quality, and alleviation of international conflicts over water allocation. UNEP has planned or begun environmental inventories and action plans for 10 watersheds in Africa, Asia, Latin America, and the Caribbean. The agency's International Environment Technology Centre, based in Osaka, Japan, has published a database of technologies appropriate to drinking water.

To combat lead poisoning, the group collaborated with the United Nations Children's Fund (UNICEF) to publish *Childhood Lead Poisoning: Information for Advocacy and Action*, a report intended to give advocates enough background information to press for lead-reduction activities. Although lead from air pollution causes relatively few deaths, it causes a great deal of disability, particularly in children. Given the high rewards and relatively low costs of control, lead control is one of the most encouraging sectors of the global air quality picture. By 1996, 18 countries had phased lead out of gasoline. UNEP hopes that focusing attention on the issue will prod more countries to follow suit.

The UNDP's mission is to help countries build national capacity to achieve sustainable human development, giving top priority to eliminating poverty and building equity. Since 1995, the organization has spent about $1.9 billion per year. The UNDP's sustainable energy and environment division helps provide capacity building services and innovative financing mechanisms for integrated water resources management, river basin development, urban water utilities, water quality, wastewater reuse, and other water-related areas.

World Health Organization

With a total budget of about $1.8 billion for the 1998–1999 biennium, the WHO is a larger player in environmental health than UNEP. Yet, as with UNEP, much of its effort must be dedicated to training personnel, monitoring conditions, and developing plans that will be implemented by others. The WHO sponsors international environmental health libraries and epidemiology networks. The WHO and UNICEF collect national statistics on water supply and sanitation under the Joint Water Supply and Sanitation Monitoring Programme. These figures show that 2.9 billion people now lack adequate sanitation; an estimated 5 billion could be in similar straits by the year 2035.

In 1997, the WHO convened the first AFRICA 2000 Regional Consultation on water supply and sanitation, with a goal of using a "bottom-up" approach—relying on local and nongovernmental organizations rather than on government agencies—to bring services to a continent where 400 million people lack a water supply, and even more lack adequate sanitation. To assist the many dilapidated water utilities, the WHO hosts an international working group on the operation of rural and urban water supplies and sanitation services.

The organization's regional office for the Americas, the Washington, DC-based Pan-American Health Organization (PAHO), has instituted a low-tech approach to clean water: chlorinate water in homes. The technology is especially appropriate for rural people and urban residents with a questionable water supply, says Horst Otterstetter, director of PAHO's division of health and environment. "I'd say 60% of rural communities [in Latin America] are now benefiting from the point-of-use approach," he says. Overall, Otterstetter adds, about 40–50% of the WHO's health and environment budget goes to water and sanitation.

In 1997, the WHO introduced new indoor and outdoor air quality guidelines. In view of the ongoing scientific debate about the hazards of particulate matter, the guidelines did not cover particles, but they did cover carbon monoxide, ozone, nitrogen and sulfur dioxides, eight metals, and nine organic compounds. These guidelines are voluntary but still important, French says, because several governments look to them for guidance in setting their own standards.

Observers expect a revitalization at the WHO once Gro Harlem Brundtland is confirmed as director-general, as expected, in May. Brundtland, the former prime minister of Norway and an architect of the concept of sustainable development, has said her primary tasks will be internal reform at the WHO and making health issues more prominent on the world stage.

Future Synergies

As international health and environment organizations ponder a menu of expensive environmental health problems, some observers suggest looking for synergies—covering two or more areas at once. In air pollution, for example, French suggests finding solutions that address long-term and immediate problems simultaneously. "This is a challenging set of issues, and it can't be approached with end-of-the-pipe pollution controls," she says. "Transportation is a major part of the problem, and [international organizations] have to take a broad approach—public transport, subways, and bicycles. To what extent are places like the World Bank doing that as they advise on transportation lending?"

Despite isolated successes, no one from these international organizations seems optimistic about a near-term victory over the big three environmental health killers. The gains in water supply and sanitation made during the 1980s have already been devoured by population growth. And as demand and consumption continue to soar in many parts of the world, the future seems to include more gray skies and more deaths due to pollution-induced respiratory illness.

Yet despite—or possibly because of—these grim realities, the big three environmental health problems are finally gaining a higher profile among international agencies, according to Fox-Przeworski. "I don't think it should be a question of diverting resources that are spent elsewhere," she says. "These problems are increasingly with us, and if they are preventable, we are being short-sighted in not addressing them now. The costs will be higher later on."

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